

Applicant: Joel THOMSON
Serial No.: 10/764,760
Filed: January 26, 2004
Page 2

Amendments to the Claims:

Please amend claims 1, 2, 4 and 16, and cancel claim 3 and 6-13 without prejudice or disclaimer, as follows:

1. (Currently Amended) An apparatus for a reciprocating screw injection molding machinery having a barrel and a screw which rotates in the barrel comprising:

~~a check valve having means for selectively locking the check valve in an open position in response to reverse axial motion of the screw along the barrel to allow bi-directional flow of material along the screw.~~

2. (Currently Amended) ~~The An apparatus according to claim 1 wherein the for a reciprocating screw injection molding machinery having a barrel and a screw which rotates in the barrel comprising:~~

~~a check valve having means for selectively locking the check valve in an open position in response to axial motion of a stud along the barrel comprises: means responsive to axial motion of the check valve to allow bi-directional flow of material along the screw.~~

3. (Canceled)

4. (Currently Amended) The apparatus according to claim 1 further comprising:

~~means for selectively unlocking the check valve from the open position in response to normal rotational motion of the screw.~~

Applicant: Joel THOMSON
Serial No.: 10/764,760
Filed: January 26, 2004
Page 3

5. (Original) The apparatus according to claim 1 further comprising:

means for at least partially blocking the egress of the material from the barrel.

Claims 6-13. (Canceled)

14. (Original) The apparatus according to claim 1 further comprising:

means for attaching the check valve to the screw.

15. (Previously Presented) The apparatus of claim 1 wherein the check valve comprises:

a body having a protrusion;
a sliding ring having a slot; and
a valve seat;

such that the check valve locked in the open position comprises the protrusion located in a bottom of the slot.

16. (Currently Amended) The apparatus according to claim 1 wherein the check valve is selected from the group consisting of: a ring-type check valve, a poppet-type check valve, and a ball-type check valve.

17. (Withdrawn) A method of allowing bi-directional flow in reciprocating screw injection molding machines having a barrel and screw which rotates in the barrel comprising the steps of:

moving the screw in a rotational direction to allow material to flow in a first axial direction;

moving the screw in a second axial direction to lock a check

Applicant: Joel THOMSON
Serial No.: 10/764,760
Filed: January 26, 2004
Page 4

valve;

moving the screw in the first axial direction to cause the material to flow in the second axial direction; and

moving the screw in the rotational direction to unlock the check valve and allow material to flow in the first axial direction.

18. (Withdrawn) The method according to claim 16 wherein the second, third, and fourth moving steps are repeated a plurality of times.

19. (Withdrawn) A method of cleaning reciprocating screw injection molding machines having a barrel and screw which rotates in the barrel comprising the steps of:

displacing residual melt in screw flights of the screw with a cleaning compound;

accumulating a quantity of the cleaning compound ahead of the screw;

blocking an exit for the cleaning compound from the barrel;

moving the screw in a forward axial motion to cause the cleaning compound to travel back into the screw flights;

at least partially opening the exit; and

expelling the cleaning compound.

20. (Withdrawn) The method of claim 18 further comprising, after the moving step, the step of:

accumulating a quantity of the cleaning compound ahead of the screw.

21. (Withdrawn) The method of claim 19 wherein the moving and second accumulating steps are repeated a plurality of times.